COMMUNICATIONS ALLIANCE LTD

# AUSTRALIAN BUILDING CODES BOARD

# TELECOMMUNICATIONS SPACES AND PATHWAYS AND THE NCC

## COMMUNICATIONS ALLIANCE SUBMISSION
## 24 NOVEMBER 2014

## EXECUTIVE SUMMARY

Communications Alliance is pleased to have the opportunity to make a submission on the Australian Building Codes Board's *Telecommunications Spaces and Pathways and the NCC* Discussion Paper.

The membership of Communications Alliance who have provide input into this response includes telecommunications carriers, service providers, pay TV providers, industry associations and communication cable testing/inspection organisations.

Communications Alliance is highly supportive of the initiative that the ABCB has undertaken to consider the proposal to amend the National Construction Code (NCC) to include requirements to ensure pathways and spaces are provided in buildings for telecommunications cabling and equipment. Our members see this as an excellent opportunity to provide the building and telecommunications sectors with greater certainty in delivering communications services to deliver better outcomes for the Australian public.

The following points in this submission are highlighted:

- buildings need to be designed and constructed to have the capacity to deploy communications services to meet the needs and expectations of users of communications services into the future
- telecommunications services access into buildings and the provision of adequate spaces and pathways within those buildings is seen as critical
- the provisioning of spaces and pathways for both carrier cabling and customer cabling should be considered together as they both impact on the service delivery
- the requirements need to be agnostic with respect to the type of telecommunications service to be provisioned
- telecommunications services have become a de facto essential service beyond the days of the plain old telephone service and have become high speed, reliable and secure broadband services. As such they have become an integral aspect of the lives of Australians. Having the NCC support the delivery of these services is seen as the logical next step.
- retrofitting Multi-Dwelling Units (MDUs) for telecommunications services is one of the problem areas being experienced today, in particular with the NBN rollout. The inclusion of appropriate requirements in the NCC to guide future design and construction would go a long way to alleviate these problems
- there are many learnings that can be taken from overseas which would provide a better understanding of the extent of the issues in other environments and how other jurisdictions address these problems
- further work on specific solutions may need to be undertaken, including, as an example, the incorporation of horizontal suspended catenary wires dedicated for telecommunications cabling in false ceiling spaces of commercial buildings as a part of pathway designs.

- guidelines could provide a complimentary role to the NCC but it is doubtful whether a Guideline by itself could have the desired outcome without the necessary enforcement/encouragement backing behind it

Communications Alliance notes that the Discussion Paper is seeking responders to quantify some of the issues and to provide costings. Communications Alliance does not have ready access to relevant statistics but recognises that some individual organisations will be providing separate submissions to the ABCB in response to the Discussion Paper which may include more detailed information that the ABCB is seeking.

**About Communications Alliance**

Communications Alliance is the primary telecommunications industry body in Australia. Its membership is drawn from a wide cross-section of the communications industry, including carriers, carriage and internet service providers, content providers, equipment vendors, IT companies, consultants and business groups.

Its vision is to provide a unified voice for the telecommunications industry and to lead it into the next generation of converging networks, technologies and services. The prime mission of Communications Alliance is to promote the growth of the Australian communications industry and the protection of consumer interests by fostering the highest standards of business ethics and behaviour through industry self-governance. For more details about Communications Alliance, see http://www.commsalliance.com.au.

Further information on the Satellite Services Working Group can be found at http://www.commsalliance.com.au/Activities/committees-and-groups/SSWG. The list of SSWG members is included at Attachment 1.

# RESPONSE TO QUESTIONS RAISED IN THE CONSULTATION PAPER

## General comments

Communications Alliance recognises that the inclusion of requirements for telecommunications space and pathways in the National Construction Code is an excellent opportunity to provide the building and telecommunications sectors with greater certainty in the delivery of communications services to the Australian public.

Communications Alliance observes that the topics included for consideration in the review are potentially broad in scope but in considering the Discussion Paper, our members have focused their attention on the following:

- buildings need to be designed and constructed to have the capacity to deploy communications services to meet the needs and expectations of users of communications services into the future
- keys areas that need to be addressed are the telecommunications services access into buildings and the provision of adequate spaces and pathways within those buildings

Communications Alliance observes that in today's environment, there are many entities that are a part of the delivery chain of communications services to the customer. In our sector, where there may have traditionally been only one Carrier with the responsibility for coordinating the design, installation, delivery and maintenance of telecommunications services, there are now many providers who may be involved in the delivery of a single service or are competing in the delivery of different services within a building. A common set of rules that the building industry can follow would go a long way to address the inadequate pathways that we see today and alleviate many of the problems being experienced by customers and communication service providers.

## Proposed approach

In considering what requirements could be included in the NCC for the provisioning of telecommunications services in buildings, Communications Alliance recommends the following approach:

- consideration for telecommunications needs to be holistic in nature. The provisioning of spaces and pathways for both carrier cabling and customer cabling should to be considered together as they both impact on the service delivery.
- every building class, the individual buildings and the occupants of those buildings have different telecommunications needs. With this in mind, requirements for inclusion in the NCC will need to be designed to maximise flexibility in their application. There are potentially many different telecommunication requirements that need to be catered for which are not always easily identifiable at the time of design or construction.
- the requirements need to be agnostic with respect to the type of telecommunications service to be provisioned. The aim is to have the

capacity to deploy communications services up to the user interface, including voice and broadband services, and both for the domestic or business environments.

- to align with the relevant parts of legislation including Part 20A of the *Telecommunications Act* which requires any new building to have fibre ready pathways up to the building unit (tenancy) and Schedule 3 which details the Carriers' powers and immunities.

Communications Alliance observes that in this respect, the needs of the telecommunications provider are not dissimilar to the needs of electrical/power sector when considering what is in essence an essential service that is to be delivered to a premises and reticulated within that premises. The NCC provides the means for buildings to be constructed with power, water and sewage facilities to the building entry point and up to where the user interfaces with that utility, such as an electrical power point, water tap or floor waste point. A similar approach could be taken within the NCC to support the provisioning of communications services to the required communications points of interface.

The rationale for adopting this approach is to realise a net economic benefit for the customer and the nation. By including requirements in the NCC, initial costs may be imposed on the industry but would be offset through the benefits of long term savings to building owners and increased productivity. By having the requirements specified up front for the building sector in the NCC, this would be seen as the most appropriate means to provide consistency for builders at the design and construction phase.

Other factors to be taken into account when considering any future requirements for telecommunications spaces and pathways in the NCC include:

- the increasing deployment of Integrated Communications Networks (ICNs) in commercial buildings. Large commercial buildings are using ICNs for building services such as security services like access control, CCTV and environmental control like air conditioning feedback systems, power monitoring and metering all of which require communications networks. Other applications include 'people counters', digital signage and information kiosks which will also require telecommunications links. Along with the ICN most commercial buildings will need pathways for fibre optic cable to service an Active 'Distributed Antenna System' (DAS), used to re-broadcast mobile phone frequencies.
- scenarios where building classes may change when buildings are refurbished, for example from commercial to residential.
- consideration for pathways for other communications services that are not Carrier services. For example services can use coaxial and/or optical fibre cable for terrestrial, cable (i.e. HFC) and satellite television distribution on Master Antenna Television (MATV) and Satellite Master Antenna Television (SMATV) systems. In another example in regional and remote areas of Australia, telecommunication services may be provided by means of wireless (e.g. mobile cellular such as LTE/4G) and satellite (e.g. VSAT) technologies. The cabling associated with these types of services are similar to MATV and SMATV and consideration for pathways and spaces should also be given to these types of services.

- as cabling technologies are evolving at a rapid pace, the building sector needs to be across these developments when applying any future NCC requirements for telecommunications spaces and pathways.

**Consideration of the hierarchical structure of the NCC**

In developing our response for the Discussion Paper, Communications Alliance attributed a little time to consider how telecommunication requirements may fit under the hierarchical structure of the NCC, to assist in our thinking. The following has been left in the submission for information.

***Objective***

*The Objective is to allow occupants access to telecommunications services ….*

***Functional Statement***

*A building is to be constructed to provide the capability to have telecommunications services installed and reticulated suitable for the intended use.*

***Performance Requirements***

*A building must have the capability to allow for:*

- *the Carriers or Carrier Service Providers to install their infrastructure to their chosen/agreed demarcation point*
- *the Carrier's or Carrier Service provider's demarcation equipment and transition equipment to be accommodated between their network point of presence and the point of demarcation.*
- *a customer to extend the Carrier's service(s) to the point or points where the user interface is required*
- *a customer's cabling reticulation equipment to be accommodated in an easily accessible location.*

**Specific comments**

| Question | Response |
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| **1** | **Can you provide examples where owners or occupiers have been unable to access telecommunications in residential SDUs or MDUs (NCC Class 1 or 2 buildings) because in-building pathways or spaces were insufficient?** |
| | The requirements for telecommunications services may change over time as building tenants change. The provisions to deploy telecommunications services must be able to deliver telecommunications at the highest service level so as not to place impost in the use of the premises.<br>Members provided examples of purpose-built buildings that had to be retrofitted to accommodate the required communications cabling for the tenants. One example that was sited was of a multistorey building for a bank that required four eight inch cores to be drilled through each floor in the janitor's closet.<br>Many buildings, particularly those built up to the late nineties had little or no specific provisioning for communications cabling. Buildings today continue to lack adequate communications spaces and pathways or equivalent or better alternatives to allow for the cost effective and efficient delivery of telecommunications services. |
| **2** | **Are telecommunications spaces and pathways a necessity in every Class of building and do these needs relate to providing a minimum level of health & safety, amenity or sustainability?** |
| | Telecommunications spaces and pathways are a necessity in every Class of building. Buildings are living and working spaces and as such must support the technologies required to support the various functions of a building. There are few technologies today that are not connected in one way or another to the Internet. These all go towards providing a more healthy and safe environment. Examples of these could be back-to-base services such as age and assisted services and medical monitoring services. As an example, patients are returning from hospital sooner, necessitating a greater dependence on remote medical monitoring. |
| **3** | **Can you identify the types of building where the need is greatest, and what proportion of new buildings are designed without adequate pathways and spaces?** |
| | Without access to adequate statistics on the installations for various building types, it is difficult to identify where the needs are the greatest.<br>The underlying issue that is consistent is the lack of the capability to install services in a timely, efficient and cost effective manner as every building presents its own design requirements. |

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| | As a rule of thumb, the larger the building, the greater the number of tenants and the greater the need for adequate telecommunications pathways and spaces.<br>The challenge of provisioning telecommunications services is directly proportional to the number of tenancies in the building.<br>In the case of commercial building where the majority of the tenants occupy whole floors the critical element is the ability to deploy backbone cabling to the floor and between the floors with ability to have carrier service delivered to the various tenants.<br>In the case of commercial building with large numbers of tenants in each floor then the critical element is backbone cabling to the floor as well as the capacity to reach each individual tenancy space. |
| **4** | **Do some buildings pose greater challenges than others to retrofit?** |
| | It is observed that strata titles are well known for inadequate facilities and access issues to deliver services over common areas to individual units.<br>There are many other considerations, including:<br>• heritage listed buildings<br>• buildings that contain asbestos (such as in the case of retrofitting warehouses into residential) |
| **5** | **Can the competitive effects of insufficient space in commercial buildings (NCC Class 3, 5– 9 buildings) be quantified** |
| | The lack of existing riser space limits the ability of successive telecommunications Carriers to provide service to tenants. The result is that this limits choice of telecommunications services available to the tenants.<br>This may potentially be less of an issue under the NBN model going forward, with a wholesale telecommunications service being provided to a building resulting in the need for less carrier cabling. |
| **6** | **In your experience, how many carriers would generally seek the use of pathways and spaces in a building to deploy telecommunications infrastructure, and does this affect the amount of space required?** |
| | In a competitive environment every Carrier has equal rights to provide services to a user in a building, clearly this is the case in major CBD and business centres. As a guide it is not uncommon for up to eight Carriers to be seeking access to a single commercial building depending on the size of the building and number of tenants. It can be more. There is no doubt that with this many Carriers seeking access to potentially single communications risers that already have existing cabling such as alarms, CCTV, MATV etc. will create congestion in any existing pathway.<br>Outside of CBD areas, in less dense areas, the demand for services may be less. Assumptions for demand will need to be tested first, including forecasts of future growth in those areas. |

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| | For residential SDUs, typically only a single Carrier will be providing a service to this type of premises. |
| **7** | **Can you provide evidence of the extent to which issues are occurring due to retrofitting telecommunications?** |
| | Even though the provisioning of pathways needs to be as agnostic as possible with respect to the cabling of telecommunications services, there are aspects that any requirements to be added to the NCC should have been taken in account. These include the possible types of cables (e.g. fibre coax, Ethernet) and their mechanical requirements (e.g. bend radii, electrical separation) and the cabling architecture (e.g. daisy chaining, star wiring). |
| **8** | **What proportion of new residential buildings (SDU and MDUs) are constructed with inadequate pathways and spaces?** |
| | Communications Alliance does not have access to specific figures but notes anecdotally that the proportion of new residential buildings with inadequate pathways and spaces to cater for telecommunications services into the future is not insignificant.<br>Although this Discussion Paper is specifically looking at the requirements for telecommunications pathways and spaces, it is useful to have an understanding of the level of consumer awareness surrounding the provision of telecommunications services and the drivers establishing the need for pathways and spaces.<br>By way of background, research carried out by the Housing Industry Association (HIA), only 32% of new dwellings are having some form of structured cabling installed which is commonly referred to a Smart Wiring. Anecdotally, the figure could be closer to 20%.<br>This means that some 65% or some 143,000 dwellings are not having appropriate infrastructure installed, meaning they will potentially be not equipped to fully utilise the higher download rates on offer today and into the future. This figure may actually be greater depending on the quality and design of structured cabling employed.<br>With respect to the current rollout of the NBN, there are still installations that are being carried out that are non-compliant, although it appears that this number is falling as builders are increasingly becoming educated with the NBN. |
| **9** | **Is the issue significantly harder to rectify in vertical MDUs (Class 2 buildings)?** |
| | Vertical MDUs are harder to rectify. If an MDU has no existing pathways then in most instances external ducting is required. Protracted negotiations with Body Corporates are also common place where external cabling is the only choice. |

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| **10** | **Can you provide examples where owners or occupiers have been unable to access alternative telecommunications in residential SDUs or MDUs (NCC Class 1 or 2 buildings) because in-building pathways or spaces were insufficient?** |
| | See previous answers for general observations. |
| **11** | **What are the quantified costs arising from retrofitting including disruption to owners or occupiers, delays or restrictions on services, and how much of these costs is borne by other parties (e.g. carriers, builders or developers) in:**<br>**a. MDUs or SDUs; and** |
| | Costs in this areas are either difficult to quantify as it is generally on a case by case basis or are commercially sensitive and are not available for this response.<br>There are many factors that need to be taken into account as costs will vary from building to building and will depend on a variety of issues, for example whether it is a heritage listed building, whether scaffolding will be required and whether there is asbestos present.<br>Costs can be borne by the Carrier, the body corporate, or owner but ultimately costs are worn by the consumer through increased service costs.<br>It is noted though that the planning at the design stage for adequate pathways and spaces is typically more cost effective than to address deficiency through retrofitting.<br>Communications Alliance is aware that further details on costs may be provided in individual submissions from its members. |
| **11b** | **b. high-rise 'commercial buildings'?** |
| | Again it is difficult to quantify costs as they vary on a site by site basis, however they can be significant. For example, for a multi-storey building, costs include core drilling every floor, reinstating fire proofing and installing a cable ladder.<br>One solution to mitigate some of the installation costs would be for the incorporation of horizontal suspended catenary wires (or trays) dedicated for telecommunications cabling in the false ceiling spaces. Specific design details (e.g. spacing, quantity) would need further investigation but it is suggested that this could be a useful avenue to pursue. |
| **12** | **Aside from the construction costs, are there other impacts on industry as a result of requiring pathways and spaces for telecommunications in buildings through the NCC?** |
| | Specifying pathways and spaces would assist in getting service provision in a shorter timeframe with clear benefits to the customers / tenants. It would also significantly assist the coordination of activities between the building owners/managers and the telecommunication service providers. |

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| | Benefits in having telecommunications integrated into building design through the NCC would be numerous, including providing consistency in the design requirements for builders, the aesthetics of the building (especially external work) and in increasing the overall value of the property.<br>One of the ongoing issues between developers and Carriers in Greenfield estates is that of the provision of the lead-in conduit from the property boundary. Having this specified in the NCC would greatly assist the coordination. |
| **13** | **Would improving guidelines be effective in producing consistent design?** |
| | Guidelines provide a useful role in providing additional details, design ideas, building solutions etc. that do not belong in the NCC. As such, Guidelines could provide a complimentary role to the NCC but it is doubtful whether a Guideline by itself could have the desired outcome without the necessary enforcement/encouragement backing behind it. |
| **14** | **Are there other viable regulatory or non-regulatory options that could be considered?** |
| | With respect to reclaiming spaces, the removal of redundant existing network cable is the responsibility of the cable owner. In many cases the majority of redundant cable is existing copper belonging to the building owner. The cost of removal will always be the key obstacle.<br>Removal of cabling is also dependent on the cabling being referred to (e.g. old copper or unused fibre) and the physical ability to do so without undue disturbance of existing cables that are in use.<br>Communications Alliance cautions the consideration of any regulation in this area. Cables installed by a Carrier under Schedule 3 of the *Telecommunications Act* remain the property of the Carrier and may be used to serve future tenants within the building. The policing of such a provision would be challenging at best. |
| **15** | **Can you list other benefits of requiring pathways and spaces for telecommunications in buildings?** |
| | Refer to the answer to Question 12. |
| **16** | **What are the implications for improvements in technology used in telecommunications for in building pathways and spaces (e.g. will there be a reduction in size and, if so, over what timeframe?)** |
| | It is not envisaged that technology (fibre cable) will change dramatically in terms of size in the foreseeable future such that requirements for pathways will change. Under a NBN it is possible that the requirements for capacity for multiple Carriers will no longer be required for residential buildings.<br>Some developments that may have some impact into the future include: |

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| | • fibre being used in risers instead of copper<br>• increasing multiplexing over fibre<br>• the use of multi-fibre cables<br>• Multi-PON technologies with improving split ratios |
| **17** | **Are the allowances in Appendix C appropriate for buildings with similar characteristics using the thresholds such as area of usable space or building type?** |
| | The following figures are presented to provide a starting point for discussion when considered requirements for commercial buildings. Further granularity for Building Class types is required:<br>• a minimum of two building entry points from diverse locations. This geographic diversity is required for redundancy purposes. Each building penetration must cater for multiple Carrier entry (preferably one conduit per Carrier).<br>• the minimum number of vertical riser shafts should be two up to 50,000 $m^2$ then a minimum of four for larger sites.<br>• the total vertical riser area should be 600 x 250 mm for up to 50,000 $m^2$ then 950 x 300 mm for larger sites.<br>• a minimum size for a communications cupboard (like the electrical distribution board cupboard) for each floor to allow the installation of (one for each Carrier) fibre optic cable riser termination panels (RTP). The location of which may vary from Carrier to Carrier depending on design requirements. |

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